



Video Presentation



3rd International Conference on
FOOD SCIENCE AND TECHNOLOGY

November 11-12, 2019 | London, UK

Linking diet, Gut immunity and Microbiota in the pathogenesis of Type 1 diabetes

Ilaria Cosorich

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Recent data indicate that gut immunity and the mechanisms that regulate effector and regulatory T cell differentiation in the intestine are instrumental to maintain immune tolerance towards self-tissues and to prevent extra-intestinal autoimmune diseases. This observation led to the hypothesis that environmental factors as diet and microbiota modifications, affect the pathogenesis of autoimmune Type 1 Diabetes (T1D). To this aim, we analyzed gut mucosal immunity in tissue samples isolated from the small intestine of T1D patients and healthy controls (HC). A phenotypical analysis of gut mucosal immune cell subsets has been performed. We observed a statistically significant increase of Th22 cells and CD1c+CX3CR1+ dendritic cells (DCs) in the gut of T1D patients compared to HC. In order to find if there is a correlative link between diet component and immune cells subsets, we are collecting a 3-days-food record questionnaire from T1D patients. At this stage we still have not found correlations between the percentage of different Th subsets and content of fiber and polyunsaturated/saturated fat from the diet. Gut microbiota of brushing material from duodenum was analyzed by 16S rRNA sequencing. We also investigated if different type of diet can influence autoimmunity in preclinical models of T1D. In particular if a high fat diet can activate the diabetogenic T cells in BDC2.5 mice, and whether if an anti-inflammatory diet enriched in fiber and omega3 can reduce gut inflammation and protect NOD mice from T1D. We further aim at elucidating the link of gut immunity alterations and environmental factors that might have a strong impact on T1D.

Biography

Ilaria Cosorich has completed master's degree in Garvan institute of Medical Research and from then she started working as a Research assistant at Diabetes Research Institute and further she graduated her doctorate from University Vita-Salute San Raffaele University. Her project is focused on intestinal immunology and nutrition in type 1 diabetes and multiple sclerosis. Currently she is pursuing Post-doctorate at San Raffaele Hospital.

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Accepted Abstracts



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A new understanding of Environmental damage to the skin and prevention by topical antioxidants

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This presentation reviews recent research which has given us new insights into the molecular biology of extrinsic aging of the skin. Not only does UV (ultraviolet) irradiation directly cause photoaging of the skin, but also environmental pollutants significantly damage exposed skin by several mechanisms. Exposure to the noxious gases of air pollution with simultaneous exposure to UVA can act synergistically to accelerate photoaging and to initiate skin cancer. Also, ozone generated from pollutants reacting with UV induces oxidative stress of the skin's surface via formation of lipid peroxidation products, with cascading consequences to deeper layers. Furthermore, new studies have demonstrated that particulate matter (PM) pollutants can penetrate the skin trans epidermally and through hair follicles to induce skin aging via the aryl hydrocarbon receptor (AHR), a recently discovered ligand-activated transcription factor that regulates and protects keratinocytes, melanocytes, and fibroblasts. With this understanding that extrinsic aging of the skin is not only due to photoaging, we realize the necessity of protection beyond sunscreen. Fortunately, correctly formulated topical antioxidants can prevent damage inflicted by both UV and environmental pollution. The stringent requirements to achieve stability, penetration, and activity of these effective antioxidants will be described.

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Conversion of lignocellulose including biosolids and green waste to Biogas

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Lignocellulosic biomass is the most abundantly available raw material on the Earth for the production of biofuels. The conversion of lignocellulose into renewable energy and more valuable chemicals has been limited. Several methods for increasing the conversion of lignocellulose into energy by pretreating the feedstock have been developed, but all of the existing methods have large economic penalties, e.g. disposal of toxic wastes and greatly increased capital and operating costs. The discovery and characterization of *Caldicellulosiruptor* microbes; extremophilic organisms capable of solubilizing lignocellulose, suggested a possible solution to the economic problem of pretreatment. Beginning in 2014, recognizing the potential for anaerobic digestion of lignocellulose for biogas production, a multidisciplinary team including a biochemist, chemist, microbiologist and agricultural engineer, from Brigham Young and Utah State Universities has been conducting experiments to determine if we could break down lignocellulose feedstocks for later anaerobic digestion. The definition of breakdown in this case means conversion of organic solids in a high temperature vessel (175°C) containing *Caldicellulosiruptor bescii* into a type of tea that contains mostly acetate and lactate in water. Results to date indicate nearly 90% breakdown in 18 – 24 hrs. of certain plant materials including grass and leaves collected at municipal sanitary landfills. Perhaps the most significant results were that brewery waste that is somewhat refractory to anaerobic treatment could be partially broken down (50%) and even aerobic sludge from a wastewater treatment plant that was previously anaerobically digested in a mesophilic process and sun dried could be further broken down (additional nearly 40% destruction). This presentation will report the results of work we have done to take the process from the lab to the market; the hurdles to scaling and commercializing the anaerobic digestion of lignocellulose in an economically viable way.

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Behavioral and Brain mechanisms underlying sleep disruption-induced Obesity

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Obesity and inadequate sleep are public health problems that increase risk for chronic disease. Inadequate sleep has emerged as a key contributor to obesity. Thus, obesity interventions aimed at improving sleep in parallel to reducing calorie intake and or increasing energy expenditure (EE) may be more effective at mitigating obesity than interventions that do not address sleep loss. Understanding brain mechanisms that promote positive energy balance through modulation of sleep, energy intake and expenditure may also lead to novel targets for obesity interventions. We developed a rodent model of sleep disruption-induced obesity in male and female rats that is ideal for testing obesity treatments and identifying brain mechanisms underlying sleep disruption induced weight gain. In this model, we show that exposure to pre-recorded environmental noise causes weight gain and hyperphagia in noise-exposed rats relative to rats that slept undisturbed independent of sex and weight gain was exacerbated among rats when sleep disruption was combined with access to a palatable cafeteria-style diet. Moreover, weight gain in response to sleep disruption alone was paralleled by reductions in physical activity and EE. Next, we investigated whether low brain orexin signaling in the ventrolateral preoptic area (VLPO), a known sleep center in the brain, contributed to weight gain due to inadequate sleep by reducing total EE and physical activity since elevated orexin signaling promotes negative energy balance. In contrast to the response to orexin infusion in the VLPO before sleep disruption, orexin in the VLPO was ineffective after chronic sleep disruption. These data suggest that sleep loss may reduce orexin signaling in the VLPO to in turn stimulate weight gain in response to sleep disruption by reducing physical activity and the rate of energy expended during physical activity. These data have implications for reversing treating individuals who are have obesity and are sleep deprived.

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Biological pretreatment of lignocellulosic material for increased biogas production by Anaerobic digestion

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Without pretreatment, anaerobic digestion of lignocellulosic material typically converts only one-third of the carbon into biogas which is typically only 60% methane. Physical and chemical pretreatments to increase biogas production from biomass have proven to be uneconomical. The anaerobic thermophile, *Caldicellulosiruptor bescii*, has been shown to be capable of solubilizing up to 90% of lignocellulose, thus making the carbon accessible for anaerobic digestion. Preliminary experiments show *C. bescii* is capable of solubilizing a wide range of lignocellulosic materials. Anaerobic digestion readily and rapidly converts the soluble products into biogas with 70-80% methane. Isothermal microcalorimetry measurements have provided a thermodynamic understanding of the process. We have applied the pretreatment/anaerobic digestion process to giant king grass, corn mash, corn stover, waste activated sludge (WAS), almond shells and algae and found the biogas yield significantly improved. Results from experiments conducted using isothermal microcalorimetry as well as larger-scale 30L and 60L reactor pretreatment/anaerobic digestion experiments will be presented.

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Global Food sustainability: An integrated policy approach to eliminate the hunger of over 815 million people by 2030

Nurul S Aman

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This research paper presentation is to bring the awareness of the biggest challenges in eliminating the world hunger of 815 million people. The focus is to explain existing challenges faced by 500 million small farms depending on the mercy of rain and related natural blessings to make their ends meet from traditional farming methods. The issues of vulnerability of these farms in facing frequent natural calamities are further aggravated by climate change caused by increasing global warming. The study indicates that seventy five percent of crop diversity were lost in these farms mainly attributed to resource constraints to protect the crops and frequent natural calamities. The study also found that over 4 billion people in the world still do not have access to clean water for drinking and irrigation, with no access to electricity either, most of them living in rural areas depending their livelihood on traditional farming methods. The increasing rate of water and energy poverty are found in those 500 million small farms, mostly in Southern Asia and Sub-Saharan Africa, which have further aggravated the growing problems of hunger and malnutrition among all ages of 815 million people. UN reports indicate that in 2016-2017, 281 million people in Southern Asia and 23 percent population in entire Sub-Saharan Africa suffer from undernourishment. The same reports added that 45% of child mortality under age 5 worldwide are caused by malnutrition, which is about over 3 million deaths per year, of which 66 million children in developing nations go to schools hungry. In order to achieve food sustainability by achieving zero hunger policy initiative by the UN Sustainable Development Goals by 2030, this research study has explored an integrated approach of policy strategy to provide adequate technological, financial and management resources to these 500 million small farms.

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Dietary assessment and education improve body composition and diet in NCAA female volleyball players

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Intercollegiate volleyball is a powerful sport that consists of two to three-hour matches; therefore, optimal physical condition is critical for top performance. This study assessed nutrition and anthropometric parameters at the start and conclusion of both the spring 2009 (no intervention) and spring 2010 (intervention) off-seasons as well as additional measurements four months after the intervention. The subjects' body composition, total energy, carbohydrate and protein needs were calculated, and intakes were assessed. The intervention consisted of monthly individual nutrition counseling sessions based on analysis of intake from three-day food records. Food records were analyzed using Nutrient Data Systems for Research software verified by interview. Dependent T-tests were conducted on anthropometric and dietary measurements. The results revealed that during the 2009 off-season, there were no significant change in any parameters and 89% of subjects were not within recommended anthropometric and dietary guidelines. During 2010, body composition significantly decreased to optimal levels for the sport. In addition, energy and macronutrient intake significantly improved toward recommended guidelines. Four months later, the subjects' intakes and body composition were assessed, and results were compared to the spring 2010 results with no significant changes. These results indicate the providing nutrition assessment and intervention plays a critical role in physical conditioning of athletes.

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Sustainable agriculture impacts on Food, economy and climate change

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Agriculture is the backbone on which many developed and developing states thrive. Whether it is the production of goods or service. Sustainable Agriculture is the method or practice of producing food and textile to supply our social needs in the present without compromising the ability of future generations to meet their own needs. Getting it right with Agriculture will ensure tremendous opportunities in areas not limited to long term employment, safer food, healthier population, economic growth and most importantly getting it right with climate change. Healthy environment, economic profitability and social and economic equity are three main areas that Sustainable Agriculture tries to integrate into society. Every individual who is involved in the food system—growers, food processors, distributors, retailers, consumers, and waste managers can play a role in ensuring a sustainable agricultural system. As this creates and maintains the platform for more research in food production practices (Animal husbandry and Agronomy), food security and value added products. As we are aware, climate change is a certainty and it affects many economic sectors, including agriculture. It would affect production, such as crop and livestock, differently. Vast regional differences are expected for various parts of the world. Trade patterns may change, and the entire supply chains may require reorganization. Overall, the economic fortunes of producers in different parts of the world would be affected. These distributive effects could even threaten food security in certain parts of the world. Agricultural sustainability may be especially threatened by climate extremes, such as heat waves, droughts, and floods. However, not all changes induced by climate change would be negative; some may even be positive. Undoubtedly, there would be gainers and losers within a nation, as well as among countries. Gains and losses would also change with time, depending on the various climate thresholds reached, for example. Achieving sustainability would require changes in the way we manage agriculture. Therefore, equally important in this discourse is to find solutions to achieve sustainability in the wake of climate change, one of the major threats to sustainability.

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Hidden hunger - A few examples of contemporary challenges

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Independent physician-scientist, USA

According to Sustainable Development Goals (SDGs) of the United Nations, zero hunger should be realized by 2030. While this promises the intake of macronutrients (carbohydrates, protein and fat), inadequate/insufficient intake or bioavailability of micronutrients (vitamins and minerals) which is called hidden hunger, may be improved or unnecessarily improved consequently. Hidden hunger is caused by established risk factors, and can be worsened by emerging factors that are specifically highlighted in this presentation. First, air pollution has become a public health threat globally, as inhalation of airborne pollutants provokes body's pathophysiology including oxidative stress and inflammatory response. Investigation showed that although the nutrition intake profiles were almost indistinguishable - so was presumably the vitamin E intake, those who exposed to air pollution was with reduced circulating level of vitamin E (alpha-tocopherol) than those without. The vitamin E depletion phenomenon was because more alpha-tocopherol was consumed to counteract reactive oxygen species and chronic inflammation, and was corrected after the subjects received vitamin E and C supplementation. Second, carbon dioxide (CO₂) represents the most significant long-lived greenhouse gas in Earth's atmosphere. Increased CO₂ emission was accompanied by decreased contents of micronutrients including Zn, Fe, and B vitamins in the crops, making the nutritional values of these crops compromised. Third, the world has been continuously facing the threat of reduced population of pollinators that are not only important for agriculture output, but for the contents of micronutrients in the crops. If animal pollinators were completely lost, there would be additional 71 million people at risk for vitamin A deficiency and addition 173 million for folate deficiency. These few examples reflect the contemporary challenges for the efforts in the fight against hidden hunger. Given the irreplaceable roles of micronutrients in health and well-being as well as in the pathogenesis of non-communicable diseases (NCDs), it is warranted to understand the landscape of hidden hunger, to analyze all potential causes, and to take preventive actions accordingly from public health perspective.

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Effects of herbal extracts on quality traits of yogurts, cheeses, fermented milks, and ice creams: A technological perspective

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Consumers are more aware about the relationship between their eating habits and nutritional status. Consequently, they look for foods that are added with natural products rather than synthetic chemical compounds. In this scenario, some companies have manufactured food products with the partial or total replacement of those synthetic additives by natural herbal extracts not only because of their antioxidant and antimicrobial properties but also because of the sensory aspects they confer into products. The dairy sector has invested in this segment of healthy foods and yogurts, fermented milks, cheeses (processed or not), ice creams, and other milk-based formulations have been added with herbal extracts (i.e. green tea, Roselle, white tea, and lemongrass aqueous extract) to attract the consumers' attention and propel the sales of these foods. Herein, we reviewed the latest developments of the dairy sector regarding new foods added with herbal extracts and the effects of herbal extracts on quality traits of yogurts, cheeses, fermented milks and ice creams.

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Deal with Obesity prescription; Body, mind and right food

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Obesity is a disease that affects all world and comes with a lot of problems: highcholesterol, triglicerideos, depression, anxious, diabetes, acne, heart problems and in most of time you have desnutrition. So obesity it's not just a body problem, it's the incapacity to control the emotions and as result appear the compulsion the craving for sweet and food, behind these situation people are also "eating" their feelings like fear, anxious and unfullfield wishes. And the drugs doesn't treat by themselves or make any kind of miracle. The Obesity disease is easy to treat, the difficult is treat the patient's mind. The treatment has to be in all ways, like psychology, exercise, nutrition reeducation if it is necessary prescribe some minerals. Ask for test of disbiose, search for anemia, test insulin pos-prandial, insuline resistance and low metabolism, test the colesterol, and vitamin 25OH (D) that we know when it's low helps to get fat in abdômen, test lactose intolerance, gluten intolerance, ask for a USG of liver to research if there is esteatosis, test vitamine C, test the tyroid hormones serotonin levels and all the metabolism. First of all it's important to do the body composition, how much fat percentual? With the result of the IN BODY it is possible to advice a better type of sport activity to them and analyse if the patient is retaining water, how much they need to gain of muscle and how much they need to lose of fat. After doing the consultation ask for a food registration for five days, including weekend, try to find out what he likes, you can do a nutitional education. There is no secret to choose good and healthy food, the problem is the power of bad habbits. Think in your patient as a Whole universe to be treated..

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Zero waste sustainable Food systems: Scenarios for the cities of the future

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Wastes at household level constitute 53% of total losses in EU and 60% in the USA. It is clear that that people living in towns and large cities tend to produce more waste. Prevention of food losses and bio-waste valorization are quite inefficiently managed. Urban bio-waste, despite their high nutrient value, are marginally recycled and returned to farm soil and therefore, does not contribute to closing biogas- chemical cycles and to supporting sustainable food production. A foresight approach was used to i) identify high potential socio-technological innovations in food waste prevention and valorization and ii) extract research questions contributing to fostering and accompanying cities' breakthrough strategies towards zero waste sustainable food systems, specific to different urban settings worldwide. The exploration of three "food systems scenarios" in the context of "three urban scenarios" allows to highlight requirements and questions for the research which were grouped into five broad categories related to issues or types of impacts expected: i) society, ii) industries, food cycles and systems, iii) health and the environment (animal health, health public, safety and nutrition, environment), iv) technological processes, looping cycles and associated business models and finally v) the information and communications technologies (ICT), data processing and applied mathematics. High potential key measures and generic questions and perspectives for research on the link between cities and Zero waste sustainable food systems are discussed.

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Novel detection protocol for radical scavenging and antioxidant activity of lipophilic antioxidants

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Statement of the problem: Lipophilic antioxidants are an important class of chemical species of natural antioxidants that can increase the oxidative stability of food matrices. Common methods to determine the antioxidant activity or oxidative stress of lipophilic antioxidants require time consuming protocols, although those are not vigorously reliable. This work proposes a fast, simple and direct method based on cyclic voltammetry to monitor oxidation in lipid samples.

Methodology & Theoretical Orientation: The oxidative stress during the reaction of AIBN (2, 2'-azobis (2-methylpropionitrile)) with lipid soluble antioxidants, such as α -tocopherol, catechin, retinyl acetate, caffeic acid and 3-hydroxytyrosol was evaluated. 1-propanol was used as a unique solvent, which allowed direct dissolution of a wide range of lipid soluble redox species. Electron transfer (ET) capacity was evaluated by the peak current (ip) and peak potential (E). The kinetic rate of the reactions between laboratory antioxidants and AIBN were measured at 60 °C. Finally, same procedure was also applied to measure the antioxidant activity and oxidative stress of different commercial edible oils: extra virgin olive oil (EVOO), virgin olive oil (VOO) and, olive byproduct; sansa olive oil (SOO).

Findings: The methods demonstrated that antioxidant activity was positively correlated with increased concentrations among the laboratory antioxidants and EVOO, VOO and SOO samples. On the other hand, oxidative stresses were negatively correlated with the duration of reaction periods.

Conclusion & Significance: This method can be the alternative of traditional methods to test lipid soluble antioxidants in lipid matrices rapidly and straight.

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The incorporation of Nutraceuticals in strategic reformulation of Food products for better Health, Nutrition and disease prevention: The case studies of LCPUFA, probiotics, prebiotics, phytosterol esters, β -glucan addition

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Nutraceuticals are potentially healthy foods that play a key role in humans' wellbeing, health enhancement, disease prevention and treatment. For example, cardiovascular diseases occur in association with risk factors that are amenable to prevention or treatment by nutraceutical interventions. Several ingredients marketed for use in dietary supplements address such risk factors. The ability of nutraceuticals to favourably influence cardiovascular risk factors and atherosclerotic vascular disease should be recognized as a great opportunity for this disease prevention or treatment. There is a pressing need for edible delivery systems to encapsulate, protect, and release bioactive lipids within the food, medical, and pharmaceutical industries. The fact that these delivery systems must be edible puts constraints on the type of ingredients and processing operations that can be used to create them. The major bioactive lipids that need to be delivered within the food industry (for example, ω -3 fatty acids, and phytosterols), highlight the main challenges to their current incorporation into foods. The delivery systems used were produced from food-grade (GRAS) ingredients (for example, lipids, proteins, polysaccharides, surfactants, and minerals) using simple processing operations (for example, dough mixing, homogenizing, extrusion and drying).

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Salt content in Food provided by catering food sector in Saudi Arabia

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Background: Salt (sodium chloride) is vital molecules for human being. In diet, salt used widely and daily for preserving food, enhancing flavour. Also, in food industry, salt is essential additive for food processing and manufacturing because of its low cost and varied properties. Dietary salt is one of the main risk factors of non-communicable disease. Sodium reduction showed improvement in the health outcomes and lowering risk factors. In Saudi Arabia, there is a general paucity of research investigating population consumption and dietary content of salt. In term of food eaten out of home, there are worldwide limited published data on restaurant food content of salt. In Saudi Arabia, there are no data on restaurant food or fast food content of salt. This research aims to investigate and assess salt content in catering food sector in Saudi Arabia

Methods: Experimental study, using chemical lab analysis data of 1653 food items from 57 food catering serves providers. Data analysis includes mean salt content and the ratio percentage of salt content out of WHO recommended salt intake (5 g/day).

Results: The food groups with the highest average salt content (g/100g) were in dressing and condiments (1.54), extra and add-on (1.47). The lowest average value was in beverages (0.06) and dessert (0.34). The top ratio percentage of salt content per 100g were in dressing and condiments, extra and added-on, meats, and chicken with more than 30%, 29%, 25%, and 25% respectively. The ratio percentage of salt content per serving size were 230 % meals, 92% Pizza, 65% red meat and 64% chicken.

Conclusions: From public health prospect, this study importance is as a baseline study to monitor trends in salt levels over time, as well as provide a starting point to set potential future salt reduction targets for food providers sector.

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Effect of music therapy to the pain and anxiety level experienced during labor

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Background: Childbirth is a painful process especially to primipara. When the body is out of equilibrium, stress occurs. Anxiety is a response of the body when put into new situation or perceived change. Music provides relaxation to the body, however music therapy as pain management has very limited study in the Philippines. Thus, this study examines the significant effect of music therapy to the pain and anxiety level during active phase of labor.

Methods: This is a quasi-experiment which utilized purposive sampling. Participants (n=20) were assigned to control (n=10) and experimental (n=10) groups respectively. Pre-test and post test on pain and anxiety level were assessed to both group during their active phase of labor. Pain level was measured using Numerical Pain Scale and State Trait Anxiety Inventory translated in Filipino by Cada for the anxiety level. The experimental group received the routine nursing care and were exposed to music therapy (piano classical music by Beethoven) for two hours duration, while the control group received only routine nursing care.

Results: Both groups were similar in age bracket (20-25), no income and Roman Catholic, however, differ in marital status and educational attainment. Pre-test pain level in control group revealed severe pain (50%) and (90%) experimental group. Pre-test anxiety level in control group had a weighted mean of 42.8 and 44.2 in experimental group both under moderate level. Post test pain level in control group had (70%) severe pain and (50%) both severe and worst in experimental group. Post anxiety level in control group had lowered its score by 0.6 from 42.8 to a weighted mean of 42.2 and experimental group had also lowered by 1.4 from pre-test to a weighted mean of 42.9, though both groups remained in moderate anxiety level. Pre-test (-1.223) and post test (-1.546) pain level between control and experimental group set at 0.01 significant level had no significant difference. Pre-test (-0.6715) and post test (-0.2916) anxiety level between control and experimental group set at 0.01 significant level had no significant difference.

Conclusion: Music therapy had no significant effect on the pain and anxiety level experienced during active phase of labor in primipara.

Recommendations: Effectiveness of relaxation brought by music therapy highly depends on how patients accept the intervention and cannot be possible when heard only once. Music therapy can result to relaxation of the body only through conditioning of the mind. Further studies are needed on music preferences during active phase of labor, pain threshold and correlation of pain and anxiety level and different setting such as private hospitals or lying-in clinics.

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Effect of hydrocolloid addition on properties of low-fat cheddar cheese

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Reduction in fat in low fat cheese (LFC) causes an adverse effect on the characteristics, such as texture, flavour, functional and sensory properties of cheese. Hence, fat replacers have been used improve the characteristics of LFC. Hydrocolloid was used as a fat replacer due to its ability to form gel particles in milk in situ in the presence of calcium ions. Four levels of hydrocolloid were added to LFC: 0.12 (LFCH1), 0.17 (LFCH2), 0.18 (LFCH3) and 0.23% (w/w) (LFCH4), with up to 92% fat reduction; and control full fat cheese (CFFC) and control LFC were also prepared. Cheese samples were examined for physical, chemical and biochemical properties.

The yield of the cheeses ($P < 0.05$) was directly proportional to the fat and hydrocolloid level in milk, whereas the moisture and total protein were inversely proportional to the fat content ($P < 0.05$). The results of primary proteolysis (except pH 4.6 soluble nitrogen) showed that hydrocolloid added LFCs demonstrated higher level of proteolysis compared to CLFC and CFFC, whereas arginine was found in highest level in hydrocolloid added LFCs. Volatile compounds were also varied with cheese treatment. TPA illustrated a significant improvement in texture of hydrocolloid added LFC ($P < 0.05$) compared to CLFC. The textural attributes of LFCH1 ripened for 30 days were comparable to CFFC ripened for 60 days and beyond. Scanning electron micrograph revealed that hydrocolloid added LFCs had smoother surfaces as compared to CFFC and CLFC. Confocal laser scanning microscopy suggested significant ($P < 0.05$) increase in fat globules' size, area and volume in CFFC as compared to LFCs during ripening. Hunter L, a and b values for hydrocolloid added LFCs indicated that they were whiter than CLFC and less yellowish than CFFC. Addition of hydrocolloid significantly improved the textural and microstructural properties of LFCs, affirming its potential as a promising fat replacer.

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Obesity and overweight among Arab population in Middle East

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At the time that one third of the globe populations still suffers poverty and under-nutrition; two third are struggling against overindulge foods which lead to overweight and obesity, where these observable facts kill more people than malnourished and underweight population. Obesity and overweight are an important adaptable risk factor for many chronic diseases and are the fifth leading risk for global deaths. The World Health Organization predicts there will be 2.5 billion overweight adults in the world by 2017 and more than 750 million of them will be obese. Epidemiological studies of obesity in the Mediterranean basin were limited, particularly for Arab population. Nevertheless, the effects of overweight and obesity are widely documented as one of the recent leading Arab health challenges. Indeed, many efforts have been made to stress the role of cultural attitudes that may underlie the high prevalence of obesity among Arab population. Historically, bread is the main staple in the Arab's diet and consumed widely. Decades ago bread was homemade by whole-wheat flour, today the consumed bread is almost store-bought or commercially produced white-flour bread. Indeed, this is one of many examples that describes the transition from traditional diet to the modern lifestyle characterized by low fibers and high fat dietary patterns. In fact, Arab community has undergone major transitions in lifestyle – from agricultural to predominantly urban lifestyle. The transition was primarily influenced by changes in the modernization, westernization and socioeconomic status. Adopting less healthy dietary patterns, such as high carbohydrates, low fiber and high fat diet consumption, in addition to relinquishing the Mediterranean diet have been the main reasons of overweight and obesity among Arab population in Middle East.

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Complementary feeding practices associated with wasting of children 6 - 23 months old in Dilala, Lualaba province

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Background: Malnutrition is in high prevalence in some developing countries, like Democratic Republic of the Congo mostly among children from 6 to 23 months. Complementary Feeding is among the main causes of malnutrition worldwide.

Objectives: The present study aimed to assess the complementary feeding practices associated with acute malnutrition in DRC.

Design (Methodology): A community-based cross-sectional study was conducted from October 23th to November 25th 2017 in DILALA Health Zone, using a three-stage stratified cluster-sampling technique. In 10 Health Areas, 698 children 6-23 months old were assessed on nutritional status and their mothers interviewed on complementary feeding practices. Household questionnaire pretested and revised, standardized anthropometry equipment and World Health Organization recommendations were used with trained data collectors. ENA for SMART and Logistic regression on SPSS 23 were used to data analysis.

Results: Wasting was associated with lack of knowledge on minimum meal frequency (a adjusted odds ratio=2.4, CI 1.14-5.11), minimum dietary diversity (a adjusted odds ratio=0.23, CI 0.055-0.981) and protected source of drinking water (a adjusted odds ratio=0.50, CI 0.26-0.93).

Conclusion: Wasting was more increased among children whose mothers were without knowledge on minimum meal frequency of complementary feeding, but more prevented in children having met minimum dietary diversity and in children from household with protected source of drinking water.